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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/683,712	10/10/2003	Georg Bogner	12406-127001 / P2001.0258	2057
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EXAMINER WARREN, MATTHEW E				
ART UNIT 2815		PAPER NUMBER		
NOTIFICATION DATE 03/01/2011		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

### Office Action Summary

**Application No.**

10/683,712

**Applicant(s)**

BOGNER ET AL.

**Examiner**

MATTHEW E. WARREN

**Art Unit**

2815

**Period for Reply** -- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 August 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 6-15, 17-25, 27, 28, 30, 31, 33-49, 52 and 54-64 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 64 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-15, 17-25, 27, 28, 30, 31, 33-35, 38-49, 52 and 54-63 is/are rejected.
- 7) ☒ Claim(s) 36 and 37 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-502)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

This Office Action is in response to the Notice of Withdrawal issued on August 23, 2010.

#### ***Withdrawal of Allowance***

Prosecution on the merits of this application is reopened on claims 1-4, 6-15, 17-25, 27, 28, 30, 31, 33-49, 52, and 54-63 are considered unpatentable due to the discover of new prior art Hochstein (US Pub. 2001/0030866 A1).

Applicant is advised that the Notice of Allowance mailed is vacated. If the issue fee has already been paid, applicant may request a refund or request that the fee be credited to a deposit account. However, applicant may wait until the application is either found allowable or held abandoned. If allowed, upon receipt of a new Notice of Allowance, applicant may request that the previously submitted issue fee be applied. If abandoned, applicant may request refund or credit to a specified Deposit Account.

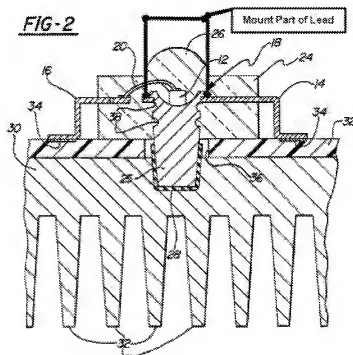
#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 17-19, 27, and 54-57 are rejected under 35 U.S.C. 102(e) as being anticipated by Hochstein (US Pub. 2001/0030866 A1).



In re claim 17, Hochstein shows (fig. 2) a housing for one or more light-emitting components (12), comprising: (i) a lead frame including: a mount part (portions of lead 14 that surround the heat sink 25) having: at least one wire connecting area (top edge of lead 16); an opening (in edge portion of lead 14) formed therein and extending completely through the mount part; and at least one external electrical connecting strip (14); and a separately manufactured thermal connecting part (25) disposed in said opening and fastened into said mount part to form an electrical connection with the at least one external electrical connecting strip, said thermal connecting part having at least one chip mounting area, wherein the thermal connecting part extends through the opening in the mount part and connects to the mount part at the opening to transfer

heat away from the mount part; and (ii) a housing base body formed from a molding compound(24), wherein said lead frame is embedded in said base body to pass out said connecting strip from said base body, said thermal connecting part has a thermal connecting surface (lower portion of heat sink 25) thermally connectable from the outside, and the housing is a surface mounted housing having a bearing surface (32) for the surface mounting with the thermal connecting surface extending to the bearing surface for conducting heat to an exterior surface to which the bearing surface mounts the housing.

In re claims 18-19, 27, and 54-57, Hochstein shows (fig. 2) the chip mounting area and the thermal connecting surface are on opposite sides of the thermal connecting part.

#### **DETAILED ACTION**

##### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hochstein as applied to claim 17 above, and further in view of Durocher et al. (US 6,614,103 B1).

In re claims 20-22, Hochstein shows all of the elements of the claims except the sidewalls of the radiation outlet window having reflector surfaces. Durocher et al. shows (figs. 6 and 7) a carrier for LED having reflective coatings (57) formed on the sidewalls of cavities (35) to reflect light emitted by the LED chips (col. 7, lines 9-19). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the sidewalls of the radiation outlet window of Hochstein by forming reflective surfaces on them as taught by Durocher to reflect light emitted by LED chips in the window.

In re claim 23, the references do not disclose the specific heights of the reflector well. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify an overall height of said reflector being no greater than four times a height of the chip, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272,205 USPQ 215 (CCPA 1980).

In re claim 24, Durocher shows (figs. 6 and 7) the reflector walls and the reflector surfaces are at certain angles with respect to the main emission direction, but not necessarily at different angles with respect to the main emission direction. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the reflector walls and the reflector surfaces are at different angles with respect to the main emission direction, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272,205 USPQ 215 (CCPA 1980).

In re claim 25, Durocher shows (figs. 6 and 7) substantially all the structure set forth in claim 25 except for an angle between the reflector walls and the main emission direction being greater than an angle between said reflector surfaces and the main emission direction. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Hochstein and Durocher by including an angle between the reflector walls and the main emission direction being greater than an angle between said reflector surfaces and the main emission direction, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272,205 USPQ 215 (CCPA 1980).

Claims 1-4, 6-7, 9-12, 28, 30-31, 33-35, 38-40, 43-46, 49, 52, 58, and 60-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hochstein (US Pub. 2001/0030866 A1) in view of Durocher et al. (US 6,614,103 B1).

In re claims 1 and 52, Hochstein shows (fig. 2) a lead frame for a radiation-emitting component, comprising: a mount part having (portions of lead 14 surrounding heat sink 25): at least one wire connecting area (top edge of lead 16); an opening formed therein and extending completely through the mount part; and at least one external electrical connecting strip (14); and a separately manufactured thermal connecting part (25) disposed in said opening and fastened into said mount part to form an electrical connection with the at least one external electrical connecting strip, said thermal connecting part having at least one chip mounting area (cup area holding chip

12), wherein the thermal connecting part extends through the opening in the mount part and connects to the mount part at the opening to transfer heat away from the mount part. Hochstein shows all of the elements of the claims except the reflector well surrounding said chip mounting area. Durocher et al. shows (figs. 6 and 7) a carrier for LED having reflective coatings (57) formed on the sidewalls of cavities (35) to reflect light emitted by the LED chips (col. 7, lines 9-19). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the sidewalls of the radiation outlet window of Hochstein by forming a reflector well to surround the chip mounting area as taught by Durocher to reflect light emitted by LED chips in the chip mounting area.

In re claims 2-4, 6-7, 9-12, 28, 30-31, 33-35, 38-40, 43-46, 49, 58, and 60-63 Hochstein and Durocher disclose all the structures set forth in the claimed invention.

In re claim 8, the references Durocher shows (figs. 6 and 7) the reflector well has a height greater than the chip but not necessarily the reflector well having height no greater than twice a height of the chip. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the reflector well having height no greater than twice a height of the chip, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272,205 USPQ 215 (CCPA 1980).



Claims 41,42, 47 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hochstein in view of Durocher et al. as applied to claim 1 above and further in view of Kumamoto et al. (US 6,129,993).

In re claims 41 and 48, Hochstein and Durocher show all the structures set forth in claims 41 and 48 except for the chip being mounted on the chip mounting area by a silver solder. Kumamoto et al. discloses in figure 8 the chip 8 is mounted to the chip mounting area 11 by a silver solder 13 (col. 7, lines 1- 4). In view of such teaching, it would have been obvious at the time of the present invention to modify Hochstein and Durocher by including the chip being mounted to the mounting area by a silver solder so as to firmly connect the chip to the package and thus effectively dissipate heat away from the chip.

Regarding claims 42 and 47, it is well known in the art that silver comprises a melting temperature greater than 260C.

Claims 13-15 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hochstein (US Pub. 2001/0030866 A1) in view of Onda Mamoru (JP-58218153 A).

In re claim13, Hochstein shows (fig. 2) a lead frame for a radiation-emitting component, comprising: a mount part having (portions of lead 14 surrounding heat sink 25); at least one wire connecting area (top edge of lead 16); an opening formed therein and extending completely through the mount part; and at least one external electrical connecting strip (14); and a separately manufactured thermal connecting part (25) disposed in said opening and fastened into said mount part to form an electrical

connection with the at least one external electrical connecting strip, said thermal connecting part having at least one chip mounting area (cup area holding chip 12), wherein the thermal connecting part extends through the opening in the mount part and connects to the mount part at the opening to transfer heat away from the mount part. Hochstein shows all of the elements of the claims except the at least one external electrical connecting strip having a surface coating for improving mounting characteristics. Onda Mamoru shows (fig. 1) the lead frame has its surface coated with Ag such that the lead frame displays excellent properties in the adhesive strength (English CONSTITUTION). In view of such teaching, it would have been obvious at the time of the present invention to modify the lead frame of Hochstein by including the at least one external electrical connecting strip having a surface coating of Ag as taught by Onda Mamoru to obtain the external connecting strip with excellent adhesive strength.

***Allowable Subject Matter***

Claims 36 and 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 64 is allowed.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW E. WARREN whose telephone number is (571)272-1737. The examiner can normally be reached on Mon-Thur and alternating Fri 9:00-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on (571) 272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew E Warren/  
Primary Examiner, Art Unit 2815